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Executive Summary

Telecommunications services are an integral part of everyday life, and are growing ever more important. The *Vermont Telecommunications Plan*, this document, considers a wide range of issues affecting the provision and use of telecommunications in Vermont. The plan addresses telecommunications in a broad sense, from telephone and data services to cable TV and the Internet. Vermont law directs the Public Service Department (PSD) to prepare and periodically revise a telecommunications plan covering a seven-year period. This edition of the plan is its fourth (following plans issued in 1992, 1996, and 2000). It has been significantly revised from the prior versions. The changes are intended in part to make the plan more useful and easier to read for greater number of users, more action- and implementation-oriented, and more readily updated in the future. The plan has benefited in its development from input provided by a wide range of users and service providers over a period of more than two years.

DRIVERS OF CHANGE AND ACTION

While many things remain the same in the telecommunications industry, change is the biggest constant. Many of these changes drive the policies and actions found in the plan. Perhaps the most compelling driver is the increasing economic importance of telecommunications and broadband telecommunications in particular. Vermont's economy will be enhanced if served by robust telecommunications, and just as importantly it can be handicapped by a weak telecommunications infrastructure. The exact economic impact of improved telecommunications is hard to quantify. Other states that have commissioned special studies have produced eye-catching results. If California followed Vermont's economy, the results of a California study would suggest that closing the gap between broadband and telephone penetration would add $5.4 billion in Gross State Product and 40,000 jobs in Vermont over 10 years. Yet one quarter of Vermont organizations still do not use the Internet, and of those that do, more than a third still do not make business-to-business transactions over the Internet.

Technological change is altering the possibilities in telecommunications. Data transmission was once an ancillary use of telephone networks. Voice service will, in the near future, become an ancillary service of a network that is evolved and designed principally to handle data. Cable communications are evolving from a means to deliver better TV signal to a full-service voice, video and data platform. If the primary service to homes and businesses becomes a high-speed data service, a wide range of applications become possible. Yet many existing legacy policies deal with telecommunications as a predominantly voice service.

The use of wireless technology to deliver services is also increasing in importance. It is no longer a niche service—about 45% of both households and businesses subscribe to wireless telephone service in Vermont. This figure continues to grow. According to one industry forecast, two thirds of U.S. households will use wireless as their only phone by 2015. The Federal Communications

Commission (FCC) has allowed landline numbers to be ported to wireless phones, making this evolution more likely. Vermonters surveyed generally believe that wireless coverage in Vermont is not good, and even a majority of households without the service believe better wireless coverage is moderately or somewhat important. Wireless Internet access is also exploding in popularity.

Vermont must prepare for and adapt to pressures and trends in the telecommunications industry and law. Federal policy, especially policy administered through the FCC, more and more tends to shrink the role of states in crafting policy for emerging services. The emergence of early-stage competition in the local telephone market in Vermont signals the need to get ready for even bigger changes to come. The increase in the number of potential competitors means that the PSD and Public Service Board (PSB) must make choices about where to focus time and energy. Changes in the telecommunications marketplace, as well as changes in federal law and technology in many cases call for a review of existing state regulations.

Despite competition, there are likely to be only a limited number of physical networks in Vermont. Reliability is important to public safety and economic activity. Preserving and enhancing reliability and key elements of service quality is as important as ever.

The telecommunications systems that support state government and other public sector users are in a period of transition. Creation of the Department of Information and Innovation (DII) was a major milestone in managing state government telecommunications on an enterprise-wide basis. The plan identifies ways to reinforce this progress.

VISION

As this plan looks to the state's telecommunications future, it is important to have a sense of what that future should look like. The following are key characteristics of that future. In some of these areas Vermont has already made substantial progress, and in others substantial progress is still required.

- All Vermonters will have ready access to affordable broadband services.
- Vermont's wireless infrastructure will be a high-quality asset to the community and economy.
- Vermont will have a telecommunications environment that encourages and rewards service providers who innovate using technology and who creatively develop, implement, and market services to address consumer needs.
- Vermont will have an environment that encourages a steady stream of required investment.
- Vermont's telecommunications industry environment will support and nurture service quality and reliability.
- Vermonters will have competitive choices in telecommunications whenever possible, and where competition is weak or infeasible, appropriate safeguards will be in place.

- Users of telecommunications technology will have the freedom and capacity to apply the technology in ways that meet their needs, including new and innovative ways.
- All regions of the state will have comparable access to telecommunications services.
- Telecommunications services will provide options for disabled Vermonters and not restrict communication with other members of society.
- Consumer protections and information will shield those who are especially vulnerable to loss of essential communications services and help all consumers buy on a fair and equitable basis in the telecommunications marketplace.
- Vermont will sustain affordability of the legacy voice telephone service it has inherited through a period of transition to an emerging set of services and a new telecommunications marketplace.
- The telecommunications environment in Vermont will continue to sustain important public benefits, including access to emergency services.
- The state's telecommunications networks and services will sustain local voices that allow Vermonters to communicate with Vermonters.
- The public sector will apply proven but innovative technologies to provide superior public service.
- The public and private sectors in Vermont will work together to advance common aims.

Achieving such a future will involve the efforts of many people and organizations.

HOW THE PLAN IS ORGANIZED

This edition of the plan has two major parts, each with four sections. The first part of the plan contains four technical reports, and the second part contains policies, strategies, and action plans. A glossary of terms and acronyms is located at the end of the document. The plan is intended to be modular and to serve the needs both of those who are looking for information related to the telecommunications industry in Vermont and those who are looking for the plan's word on various elements of telecommunications policy. While readers are encouraged to read the whole plan, it is organized to make it easier for those who need to find only a part of the information it contains.

Section 1, "Telecommunications Trends for 2004 and Beyond," examines the importance of telecommunications to the economy and summarizes trends in telecommunications technology, business, and regulation that may affect the industry in Vermont. Section 2, "Vermont Telecommunications Initiatives and Activities," provides an overview of what providers and users of telecommunications in Vermont are doing in the field. Section 3, "Telecommunications Almanac," contains various facts, figures, and maps related to use, price, availability, and other information about the telecommunications industry in Vermont. Section 4, "Public Input Process and Survey Results," summarizes the public input process used in the development of the plan and provides detailed results

from one of the elements of that process, the telephone surveys conducted for the PSD in late 2003. These four sections will be useful to those who are simply seeking information about the state of telecommunications in Vermont and factors influencing it. They also provide useful context for the sections of the second part.

Part 2 of the *Plan* contains Section 5 through Section 8. Within each of the sections of the second part, readers will find a succession of bulleted items on various topics labeled, "Policies," or "Strategies/Action Plans." "Policies" are intended to guide on-going activities or provide direction for situations as they arise. "Strategies/Action Plans" outline approaches or specific steps to address issues more proactively. Section 5, "Universal Service," deals with access to and affordability of telecommunications services for Vermonters. Section 6, "Telecom Infrastructure and Service Development," shines a light on ways to get the networks and applications that Vermonters need. It also addresses ways to encourage Vermonters to take advantage of the opportunities that developments in telecommunications provide. Section 7, "Telecommunications and Public Sector Use," lays out a program for state government and related public-sector telecommunications users. Section 8, "Vermont Telecom Regulatory Policy," defines policies and desired actions that are within the realm of Vermont's PSB, PSD, and Enhanced 9-1-1 Board. Some users may find the policies that relate to their area of interest in only one of these sections, and each section may be read on a stand-alone basis. Other readers will find the policies they are looking for across multiple sections.

SUMMARY OF POLICIES, STRATEGIES, AND ACTION PLANS

This plan addresses a wide range of tools in the state's toolbox for promoting telecommunications networks and services that meet the needs of Vermont and Vermonters. Implementation will not be the purview of one agency or organization alone, but will require efforts from people and organizations in state government, in the industry, at the local and regional levels, from private sector users, and from institutions with a public interest. Each of the respective sections in Part II of the plan provides additional detail concerning policies, strategies, and action plans summarized here.

Under the heading of "Universal Service," the plan:

- Calls for advocacy for federal universal service programs that adequately support availability of telephone and broadband in rural states like Vermont at affordable rates;
- Provides support for the idea that broadband service is the emerging basic service;
- Calls for implementation of a state fund to help offset the cost of providing telephone and broadband services in parts of the state with a high cost of service;
- Calls for re-examining the base of support for the Vermont Universal Service Fund in light of changes in telecommunications technology and regulation,

in order to assure continued financial support for the E 9-1-1, Telecommunications Relay, Adaptive Equipment, and Lifeline programs;

- Supports reduced taxes on telecommunications, especially infrastructure investment, uniform property tax treatment of cable and telephone company infrastructure, and limits to new taxes on telecommunications services for non-telecommunications purposes; and
- Continues to support technologies that support communications by persons with disabilities, including some new technologies.

In the section on "Infrastructure and Service Development," the plan:

- Sets goals for Vermont's infrastructure that support broadband and wireless services, promote reliability, and access to competitive telecommunications services;
- Sets infrastructure objectives including 90% broadband availability by 2007 and universal broadband availability by 2010, reliability improvements to Vermont's interexchange networks, additional telecommunications links to national and international high-speed networks, 100% mobile wireless coverage along Vermont's highways, and "Wi-Fi" in downtowns and key travel and tourism locations;
- Supports continuation of efforts to aggregate demand in rural communities to attract broadband services;
- Supports greater utilization of existing grant and loan programs to support telecom infrastructure development;
- Prefers private investment as the primary means of financing telecommunications infrastructure improvements in Vermont, but contemplates some forms of direct public investment in infrastructure to facilitate private-sector telecommunications services in areas where private investment fails to meet state needs;
- Calls for examination of ways that the public sector has supported telecommunications investment in other states;
- Favors steps to make it easier and more affordable for telecommunications service providers to use public road and rail rights-of-way to provide service in the state;
- Supports greater inclusion of planning for telecommunications services in the development of downtowns and business and industrial parks;
- Encourages better local and regional planning and zoning to provide paths for successful deployments of wireless services, including both commercial and public safety wireless;
- Prefers collocation of wireless facilities and use of existing structures where available and careful site selection and development to reduce the visual impact of wireless facilities;
- Favors reducing the number of lower-impact wireless facilities that must go through dual local zoning and Act 250 reviews;
- Calls for steps to increase use of state-owned sites to support wireless infrastructure deployment;
- Supports re-establishment of an extension program to help small businesses effectively use and take advantage of telecommunication technology; and

- Calls for creation of a joint marketing program between the state and the industry to accelerate broadband adoption in the state and thereby support greater investment.

Regarding "Public Sector Telecommunications Use," this document:

- Supports greater coordination of state telecommunications service purchases and telecommunications networks owned and operated by the state;
- Calls for the state to leverage its purchasing power, spare telecommunications capacity, and space in state buildings to support telecommunications service providers who make new investments, expand service, and improve prices to serve the broader community in addition to meeting state government needs;
- Supports collaboration between the DII and the Vermont Institutes on an Educational Communications Network that would be the successor to both K12Net and the Interactive Learning Network;
- Anticipates the implementation of a state enterprise instant messaging platform and the ability to integrate different communication tools as needed, including website applications, e-mail, instant messaging, remote network access, databases, plus wireline and wireless voice;
- Supports establishment of a technology migration path for state telephone services to packet-data voice services (such as voice over Internet Protocol);
- Calls for a capital budgeting commitment to an upgraded state mobile communications network that can support the State Police, other state users, as well as local emergency responders and that will support mobile data applications and improve interoperability;
- Calls for a platform of telecommunications services to support increased use of telecommuting in state government, supported by personnel policies, management guidelines, and training;
- Favors sustaining the existing Vermont Interactive Television (VIT) network and expertise in the near term at least;
- Favors expansion of state government desktop or conference room teleconferencing to improve interoffice collaboration and reduce travel needs; and
- Supports steps to better manage state electronic information assets with privacy implications.

Finally, as part of "Regulatory Policy" the plan:

- Supports action to implement a reformed framework of state regulation for a telecommunications marketplace with greater competition and more nondominant service providers;
- Calls for a new alternative regulation plan for Verizon at the expiration of the current alternative regulation plan;
- Favors developing alternative regulation plans for independent telephone companies;
- Calls for alternative regulation plans to include expectations for network modernization and investment, service quality, and pricing flexibility within safeguards, and calls for these plans to be consistent with the state of competition;

- Supports an examination of what ways there may be to achieve greater consolidation of consumer protection roles now performed by the PSD, PSB, and Attorney General in competitive telecom markets, while still preserving features that serve consumers well and that help inform key policymakers;
- Supports the availability of open telecommunications networks in Vermont that provide flexibility to competitive retail service providers and freedom to users in how they put telecom services to work;
- States the continued importance of unbundled network elements and services;
- Favors increases in the level of interconnection and traffic exchange between carriers for voice and data communications;
- Favors continued forbearance in state regulation of wireless and voice over Internet Protocol (VoIP), with certain specific limited exceptions;
- Supports upgrades in telecommunications service providers' networks to more consistently provide high-speed data services, plus redundant and physically diverse facilities and power back-up to provide greater reliability;
- Supports continuation of rules that provide telecom and cable companies fair and nondiscriminatory access to utility poles;
- Favors reforming and simplifying state regulations regarding local and instate long distance rates, especially rules and rates that affect intercarrier payments, making it easier for companies to compete in offering Vermonters new calling plan choices;
- Favors re-examining at the same time state regulations on the number of rate centers and the use of "virtual numbers;"
- Favors examining the effect of lowering intrastate "special access" prices;
- Supports local number portability;
- Supports continued full funding of E 9-1-1 and measures to provide greater accountability for spending of money from the Vermont Universal Service Fund for E 9-1-1-related activities;
- Calls for steps to prepare Vermont's E 9-1-1 system for VoIP and increased competition, and better educate Vermont's consumers who rely more heavily on wireless telephone E 9-1-1 service;
- Supports adjustments to future cable line extension formulas to better account for levels of satellite dish penetration and increased use of cable company services by business subscribers;
- Supports increased use of Geographic Information System (GIS) technology to improve the process of determining and reporting cable company obligations to extend lines;
- Calls for cable franchises that provide local content, public interest programming, and two-way digital capabilities and encourage cable operators to make investments and offer new services;
- Calls for community needs and the demand for Public, Educational, and Governmental (PEG) access programming and services, balanced by cost considerations, to drive the level of cable company support for PEG access;

- Supports PEG access that includes live origination of programming from the community, local video production and training, and the use of digital video tools;
- Calls for renewed progress on a network to collect, distribute and show PEG programming from and on cable systems around the state;
- Supports providing the PSB with the authority to suspend requirements on cable companies to file tariffs;
- Supports the participation of electric utilities in facilitating or improving wireless and wired telecommunications in Vermont within limits that protect safety, electric reliability, and electric rates;
- Favors continued support of regulations that protect the privacy of telecommunications consumers and continued monitoring of the privacy implications of new technologies and legal developments; and
- Favors greater options for electronic filing of documents with the PSB and PSD.

NEAR-TERM PRIORITIES AND ACTION PLANS

By statute, this plan covers a seven-year period. Some objectives of the plan will require substantial lengths of time to achieve or will require the right opportunity. Some policies reflect ongoing priorities. The plan calls for dozens of actions. In some cases priorities will change or be driven by forces not of the state's own choosing. That said, a relatively small number of action items contained in the plan and listed below provide a place for the state to start its work of implementation.

Four initiatives represent a good first step toward encouraging the expansion of needed services and providing assistance to users. These are:

- Support for community aggregation programs (see pp. 6-6—6-7);
- Development and promotion of an improved model zoning bylaw covering placement of wireless facilities (see pp. 6-10—6-12);
- Renewed support for an extension program to support the application of telecommunications technology by small business (see pp 6-13—6-14); and
- Development of a public-private joint marketing effort to accelerate the adoption of broadband services throughout Vermont (see p. 6-15).

Three legislative actions will help the state adapt to changes in the telecommunications industry, law, and technology:

- Creation of a state fund for telephone and broadband in areas with a high cost to provide service (see pp. 5-4—5-8);
- Authorizing greater regulatory flexibility for voice services on the Internet (see 8-18—8-21); and
- Allowing detariffing of cable TV services (see pp. 8-44—8-45).

The pace of change in the telecommunications industry requires constant attention by the PSB and PSD. Three complicated issues should be priorities for the state's regulators to finish or begin work:

- Revising rules to allow reduced oversight of nondominant carriers and update consumer protection rules to reflect today's marketplace (see pp 8-2—8-4 and 8-7—8-10);
- Creating a new alternative regulation plan for Verizon and developing alternative regulation plans for independent telephone companies in line with current objectives (see pp. 8-4—8-6); and
- Investigating wholesale local calling areas and access charges, along with associated issues (see pp. 8-25—8-28, 8-29—8-30, and 8-31—8-34).

State government is bound to take a major step when it decides shortly how to continue or replace the data telecommunications service contracts that expire in 2004. Four other actions to meet public sector telecommunications needs should also be priorities:

- Creating a combined successor to K12Net and the Vermont Interactive Learning Network (see pp. 7-4—7-5 and 7-13);
- Upgrading the state's mobile communications network for public safety (see pp. 7-6—7-9);
- Establishing a Montpelier VIT site (see pp. 7-11—7-12); and
- Issuing a state privacy policy for electronic information and conducting a privacy audit of state electronic information assets (see p. 7-14).

While the other actions called for in the plan are also important and may also be appropriate to address in the near term, the actions listed above would represent significant progress over the next 12-24 months.